

Alpha Magnetic Spectrometer Project Team Tag-up Minutes



January 5, 2005 Building 1, Room 966 2:00 – 4:00 pm

Attendees

CCB members and other attendees are listed in Attachment 1.

Agenda Item 1: Open Paper Management Tool - Open Items Report

- OPMT attached as Attachment 2 is the updated version reflecting all updates and statuses provided at tag-up
- No new actions were assigned, but modifications were made to existing actions
 - Open Item 04-032: Level of detail for the contingency return planning needs to be discussed. Task assigned to MOD/OZ.
 - Per Larissa Arnold/MOD some high level planning of possible contingency return; more detailed planning not necessary
 - Action closed 01/05/05
 - Open Item 04-049: Present a plan and coordination for AMS TIM's at KSC; FIT test at KSC. Task assigned to Donna Cox/LMSO & Jack Keifenheim/KSC.
 - AMS ready for FIT Test; Test Readiness Review (TRR) scheduled for Wednesday, January 12 in SSPF 2347 from 8:00 - 9:15 am.
 - Action closed 01/05/05.
 - o <u>Open Item 04-059:</u> Determine if the JSC EEE Parts Board needs to review the AMS P/L electronics parts / processes / documentation. Task assigned to David Kaplan.
 - Per David Kaplan if we were building with standard GFE parts we would have a list
 of parts, but since we are using European components, a list of parts, material,
 screening process, testing at component level and testing at assembly level would
 be required to provide analysis for flight assurance/space readiness.

Trent Martin/EA asked if the Parts Board really needed to review the parts list if they are already being screened?





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Paul Nemeth/LMSO wants to get with Mike Capell/AMS about getting standard format for inside quality information and precisely define what data is needed from the AMS collaborators. Trent Martin/EA wants a write-up from Mike Capell/AMS by March 1, 2005.

Action reassigned to Paul Nemeth/AMS and Mike Capell/AMS.

- Open Item 04-115: Investigate to see if we need a FEMA/CIL for AMS. If not, what are we doing in place of the FEMA/CIL? Task assigned to Paul Nemeth/LMSO & Mike Fohey/LMSO.
 - Presentation to be given at CCB in March 2005.
- Open Item 04-116: Extending Magnet Life Make sure nothing is dumping heat energy into the vacuum case (is the CAB dumping rejected heat into the VC?) / helium cooling supply. Task assigned to Craig Clark/LMSO & Joe Burger.
 - Craig Clark/LMSO stated that final Cab design is being worked on; will be adding heat pipes to USS and this will add heat to the Vacuum Case. Continuing to work to minimize heat to Vacuum Case.
 - Action closed 01/05/05.
- Open Item 04-117: Extending Magnet Life Make sure we have the capability to provide 150W of power into the cryo-coolers (-vs- the 100W nominal power). Task assigned to Craig Clark/LMSO & Joe Burger.
 - Craig Clark/LMSO stated that we have the capability to run at 150W per GSFC.
 - Action closed 01/05/05.
- Open Item 04-118: Extending Magnet Life Explore the possibility of providing more than the 150W of power to cryo-coolers and the cost-to-benefit trade. Task assigned to Craig Clark/LMSO & Susan Brion.
 - Craig Clark/LMSO explained that the possibility has been explored. ETH control
 electronics does not allow the power to the cryocoolers to go beyond 150W.
 System will shut down. No benefit to the process to be able to go beyond 150W.





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- Action closed 01/05/05.
- Open Item 04-119: Extending Magnet Life Explore what else we can do to bias the VC cold.
 - Action 1 Task assigned to Craig Clark/LMSO and Joe Burger
 - Due date changed to 03/31/05
 - Per Craig Clark/LMSO explored other options: 1) covering support ribs with MLI (currently being explored) and 2) cover exposed ribs with silver teflon (accepted as possibility right now). Note - silver teflon will not be near handrails.

Leland Hill/LMSO asked if we would need a hazard report? Who do we need approval from?

Paul Nemeth/LMSO wants to get a defined amount of 'shiny surface' we can have.

Per Win Reid/NT EVA contact is Amy Hartzel.

Craig Clark/LMSO to supply drawings to Larissa Arnold/MOD and Win Reid/NT of surfaces to be covered by silver teflon with justification why it is needed.

- <u>Action 2</u> Task assigned to Steve Harrison/SCL
 - Action item closed 01/05/05.
 - Craig Clark/LMSO stated that Steve Harrison/SCL stated that a 3° change in VC affects endurance by 1%. So in theory a 10° change could affect endurance by approximately 3%. Do we need a new baseline? Old baseline is 256K.
- o <u>Open Item AMS_02-CDR-05</u>: Update SVP and complete analysis. Task assigned to Chris Tutt/LMSO.
 - Chris Tutt/LMSO stated the SVP is updated. Talked to PEI and they refuse to closed the RID with no justification. Note: M. Witworth has left the company so V. Sanders has taken over RID.





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Chris Tutt/LMSO to send PEI responses to Win Reid/NT and Win will work it through his contact at PEI.

RID and OPMT item will be closed as soon as the Change Request and document have been approved.

- Open Item AMS_02-CDR-11: Provide updates to SSP 57003. Update SSP 57003 and issue. Task assigned to G. Le/NASA-OM and V. Sanders/Boeing/PEI.
 - Reassigned to Tim Urban/LMSO. He has joined the LMSO AMS Project Office.
 Action due date changed to 02/15/2005.
- Open Item AMS_02-CDR-12: Supply document listing EMI/electrical specs. Task assigned to Paul Nemeth/LMSO.
 - Paul Nemeth/LMSO to ask initiator if this RID can be rolled into RID AMS-CDR-4-18 and Open Action Item AMS 02-CDR-13.
 - Action reassigned to Tim Urban/LMSO.
- Open Item AMS_02-CDR-13: Supply EME control plan. Task assigned to Paul Nemeth/LMSO.
 - Tim Urban/LMSO to provide status March 2005.
 - Action reassigned to Tim Urban/LMSO.
- Open Item AMS_02-CDR-14: Supply wire list and derating details. Task assigned to Dewey Nguyen/LMSO.
 - Changes have been submitted and are under review by Shuttle Avionics Integration.
- Open Item AMS_02-CDR-15: Implement recommendation. Task assigned to Paul Nemeth/LMSO.
 - Changes have been submitted and are under review by Shuttle Avionics Integration.





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- Open Item AMS_02-CDR-16: Implement recommendation. Task assigned to Paul Nemeth/LMSO.
 - Changes have been submitted and are under review by Shuttle Avionics Integration.
- Open Item AMS_02-CDR-17: Implement recommendation. Task assigned to Dewey Nguyen/LMSO.
 - Changes have been submitted and are under review by Shuttle Avionics Integration.
- o <u>Open Item AMS_02-CDR-21:</u> Implement recommendation. Task assigned to Dewey Nguyen/LMSO.
 - Changes have been submitted and are under review by Shuttle Avionics Integration.
- Open Item AMS_02-CDR-22: Implement recommendation. Task assigned to Paul Nemeth/LMSO.
 - Changes have been submitted and are under review by Shuttle Avionics Integration.
- Open Item AMS_02-CDR-23: Implement recommendation. Task assigned to Paul Nemeth/LMSO.
 - Changes have been submitted and are under review by Shuttle Avionics Integration.
- o <u>Open Item AMS_02-Doc_Review-67:</u> Update JSC 29202 as indicated. Task assigned to Phil Mott/LMSO.
 - The suggestions have been incorporated into the document. Document currently in internal review at LMSO. Change request (CR) and document will be going through the AMS Configuration Control Board (CCB) for approval. Once CR and document have been approved, the RID and action will be closed.
- o <u>Open Item AMS_02-Doc_Review-68:</u> Update JSC 29095 Part I as recommended. Task assigned to Ross Harold/LMSO and Paul Nemeth/LMSO.





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- The suggestions have been incorporated into the document. Change request (CR)
 AMS-02/D-008 and document are currently before the AMS Configuration Control
 Board (CCB) for approval. Once CR and document have been approved, the RID
 and action will be closed.
- Open Item AMS_02-Doc_Review-78: Update JSC 29095 Part I. Task assigned to Ross Harold/I MSO.
 - The above suggestions have been incorporated into the document. Change request (CR) AMS-02/D-008 and document are currently before the AMS Configuration Control Board (CCB) for approval. Once CR and document have been approved, the RID and action will be closed.

Open Discussion

- □ Trent Martin/EA
 - Next CCB is scheduled for January 19, 2005
 - Change Request AMS-02/D-008: Baseline AMS-02 Experiment /Payload Integration Hardware Interfaces (C-ICD Part I), Revision A will be presented for approval
 - o Spoke about the ESC contract and that Lockheed Martin lost to Jacobs Sverdrup.
 - Trent Martin/EA has been speaking with Jacobs Sverdrup to try to pick up as many Lockheed Martin employees as possible.
- January 2005 Technical Interchange Meeting (TIM) at KSC
 - Titusville badging office to be open on Sunday, January 9 from 6 10 pm
 - Splinter Schedule
 - Jack Keifenheim/KSC to check current splinter schedule and verify room availability





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- Ammonia & LLSA training on Tuesday, January 11 from 9 –11 am
- Trent Martin/EA working on changes to splinter schedule
- Paul Nemeth/LMSO want the discussion of Incidental Charging of the Magnet to be a splinter discussion, not in the main meeting room
- John Stanford/NT requested to make QMS Plan presentation, needs about 30mins in the big meeting room
- Larissa Arnold/OD asked if there was telecon capability for the LCC discussion
 - Dial in Number 866-811-4954
 - Passcode 564591
- Trent Martin/EA and Jack Keifenheim/KSC to work on the splinter schedule

Trent Martin adjourned meeting at 3:01 pm.

Minutes Approval:





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Attachment 1

CCB Sign-in Sheet





January 5, 2005 2:00 – 4:00 pm Building 1, Room 966

Position	Name	Phone Number	Signature
Chairman	Porter, Steve	281-244-7149	
Member	Martin, Trent	281-483-3296	mas
Member	Vaughan, Anne	281-244-0257	
Member	Conwell, J.J.	281-483-1178	
Member	Kaplan, David	281-483-3729	David Kaplan
Member	Reid, Winston	281-226-4809	WA Peil
Member	Keifenheim, Jack	321-867-6028	via telecon
Member	Hungerford, Bill	281-218-7022	Bill Human keers
Member	Nemeth, Paul	281-333-6116	7000
Secretary	Cox, Donna	281-333-6468	Donua Swanne Cox





Position	Name	Phone Number	Signature
Attendee	Arnold, Larissa	281-483-0623	Lama anold
Attendee	Bailey, Chuck	281-244-5093	
Attendee	Caldwell, Steve	281-333-6263	Stur Caldwell
Attendee	Capell, Mike		
Attendee	Clark, Craig	281-333-6779	
Attendee	Cook, Gene	281-244-8467	
Attendee	Corbin, Cheryl	281-244-1830	
Attendee	Cornwell, John	281-483-9164	
Attendee	Dennett, Peter		
Attendee	Donahoe, Stan	281-483-4256	
Attendee	Echols, Ray	256-544-5354	
Attendee	Elmore, Dave	281-333-7496	
Attendee	Farner, David	281-333-6481	
Attendee	Fohey, Mike	281-333-6115	m & John
Attendee	Gibb, Margaret	281-244-0284	
Attendee	Harold, Ross A.	281-333-6134	
Attendee	Harris, Mary	281-483-82661	





Position	Name	Phone Number	Signature
Attendee	Harris, William		
Attendee	Hill, Leland	281-333-6539	ful Hill
Attendee	Jeevarajan, Judith	281-483-4528	
Attendee	Lear, Dana	281-483-2984	
Attendee	Lewis, Ruthan	301-286-1694	
Attendee	Lear, Dana	281-483-2984	
Attendee	Lewis, Ruthan	301-286-1694	
Attendee	Miley, Bob	281-266-4968	via telecon
Attendee	Miller, Herman	281-333-6342	F
Attendee	Morgan, Susan	281-483-4935	
Attendee	Mott, Phil	281-333-6451	
Attendee	Munoz, Nancy	281-483-9015	
Attendee	Orndoff, Evelyne	281-483-9117	
Attendee	Petri, David	281-483-9622	
Attendee	Piatek, Irene	281-483-9043	
Attendee	Rains, George (Ed)	281-244-8111	
Attendee	Rybicki, Dan	281-244-5181	
Attendee	Sauceda, Tania	281-244-1612	





Position	Name .	Phone Number Signature	
Attendee	Rybicki, Dan	281-244-5181	
Attendee	Sauceda, Tania	281-244-1612	
Attendee	Schoenberg, Rich	281-483-6437	
Attendee	Schwarz, Roger	281-483-2378	
Attendee	Stanford, John	281-483-1347	
Attendee	Stevenson, L. D.	281-244-8890	
Attendee	Tutt, Chris	281-333-7634	
Attendee	Urban, Tim	281-333-6008	
Attendee			
Attendee			4.
Attendee			





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Attachment 2

Open Action Items Matrix



Open Paper Management Tool Open Items Report



Open Item Number: 04-032

RID Open Date: 7/15/2004

RID Closure Date:

Affected Document:

Intiator(s):

Initiator(s) Phone Number:

Description:

RID Disposition:

RID Status:

Action Item Information

Action Number: 1 Actionee(s): MOD/OZ Phone Number(s):

Action Due Date: 1/14/2005 Action Completion Date:

Action: Level of detail for the contingency return planning needs to be discussed

Action Status: 11/17/04 - redo presentation as part of the KSC TIM

09/29/04 - To hold splinter group on this issueat JSC TIM in October 2004

08/20/04 - Larrissa Arnold spoke with DX/Jill Reisman and UF4.1 MAGIK/John Bussell, below is the following information that was received on contingency return planning. Nominally, the MAGIK analysis performed for a payload/object is for the trajectory of taking it out of the payload bay and attaching it to station. For payloads/objects that are left on orbit, it is often assumed that if the object would have to be put back in the bay it would use the reverse trajectory and therefore the MAGIK analysis is not performed. Pics and camera views for this reverse trajectory would be known but if any extra berthing cues were needed they wouldn't nominally be available.

However the additional analysis for contingency return could be performed if the MAGIK personnel were directed to do that. Also, since it is currently baselined that AMS will return on a shuttle flight, whatever shuttle flight is named for AMS return would perform the analysis of putting it back in the payload bay. John Bussell did say that in the past this reverse analysis hasn't been performed much but recently they worked with the ESP-2 personnel to create any extra berthing cues needed if ESP-2 would have to be placed back in the bay on LF-1. DX said, if deemed necessary, for the flight we can have a contingency procedure that shows pics and camera views for berthing the AMS back in the bay. Nominally this would be the reverse trajectory of taking AMS out of the bay.

08/11/04 - Larissa Arnold will confirm

08/01/04 - Plan due by 09/18/04

Open Item Number: 04-046	RID Open Date: 8/1/2004 RID Closure Date:
Title:	Affected Document:
Intiator(s):	Initiator(s) Phone Number:
Description:	

RID Disposition: RID Status:

Action Item Information

Action Number: 1 Actionee(s): Bill Hungerford Phone Number(s):

Action Due Date: 1/30/2005 Action Completion Date:

Action: Build an integrated logic flow, assembly, and test (LFAT Schedule?) schedule and for the payload at CERN. Include a clear plan for Quality Control and MRB Authority for the payload integration and assembly at CERN. Ensure that an iterative electrical / functional test scheme is included to ensure adequate operation of hardware / software before access to that "installed" crate or detector is no longer possible.

Action Status: 12/10/04 - Discuss issue at KSC TIM in January 2005; splinter meeting of detectors

11/17/04 - To be discussed at the Integration meeting being held at CERN December 7-9, 2004

08/01/04 - Plan due by 09/18/04; Questionare sent to detector groups to initiate process. Meeting scheduled at CERN Sept 13 and 14, chaired by Giuliano Laurenti, to consolidate and refine inputs from various detector and sub-system groups. Should result in development of preliminary LFAT Schedule for review at October TIM

Open Item Number: 04-049	RID Open Date: 8/1/2004	RID Closure Date:
Title:	Affected D	Oocument:
Intiator(s):	Initiator(s)) Phone Number:
Description:		
RID Disposition:	RID Status:	
	Action Item Information	

Action Number: 1 Actionee(s): Donna Cox/LMSO Phone Number(s): 281-333-6468

Jack Keifenheim/KSC 321-867-6028

Action Due Date: 12/30/2004 Action Completion Date:

Action: Present a plan and coordination for AMS TIM's at KSC; FIT test at KSC

Action Status: 12/10/04 - Jack Keifenheim/KSC will send list of times for training; videos to take about 2-3 hours possibly on Monday at 5pm; pre-badging on Sunday until 9pm

12/08/04 - Status for email from Sherry Lazado/KSC

Everyone's visit request has been submitted except for the ones listed below where visa information hasn't been provided. Unfortunately, I don't receive a confirmation until closer to the visit date. As soon as I receive the confirmations, I will forward to you. To date, there have been no issues brought to my attention that would delay any visit requests already submitted from being approved. Should anything like that happen, I will let you know immediately.

- 1. Grechko, Alexander
- 2. Guo. Kaihua
- 3. Jinchi, Hao
- 4. Kong, Li
- 5. Kounine, Andrei
- 6. Li. Tibei
- 7. Lin, Yue-Lan
- 8. Lu, Yusheng
- 9. Meng, Qiao
- 10. Mihul, Alexandru
- 11. Ni, Jiang
- 12. Wang, Qiuliang
- 13. Yu, Yunjia
- 14. Zhuang, Honglin

Also, I have submitted extensions to cover the FIT for the names submitted by Donna earlier this week. That extension will be until 01/28/05.

10/04/04 - Still waiting on list of CERN international visitiors from L. Barrin; S. Lazado at KSC looking into status of NAC Packages completed in 02/04

08/01/04 - Plan due by 09/18/04; Currently working on list of international visitiors with L. Barrin at CERN; Goal is to have requests submitted to KSC no later than 11/12/04

Open Item Number: 04-051 RID Open Date: 8/1/2004 RID Closure Date:

Title: Affected Document:

Initiator(s): Initiator(s) Phone Number:

Description:

RID Disposition: RID Status:

Action Item Information

Action Number: 1 Actionee(s): OZ/Bob Miley Phone Number(s):

Action Due Date: 2/28/2005 Action Completion Date:

Action: Finalize SSRMS requirements around the AMS-02

Action Status:

12/10/04 - ISS ICD to be released 02/05; question how to get into offical documentation; New status to be provided in January

11/17/04 - Add PIRN/Waiver

09/29/04 - To be discusses at the CCB on 10/27/04

08/11/04 - Needs hazard report

08/01/04 - Plan due by 09/18/04

Open Item Number: 04-055 RID Open Date: 8/1/2004 RID Closure Date:

Title: Affected Document:

Initiator(s): Initiator(s) Phone Number:

Description:

RID Disposition: RID Status:

Action Item Information

Action Number: 1 Actionee(s): Chris Tutt/LMSO Phone Number(s): 281-333-7634

Action Due Date: 1/30/2005 Action Completion Date:

Action: Review the composite panel strength testing results and requirements from the Structures Working Group with variability of data and relative paucity of data.

Action Status: 12/10/04 - Chris Tutt has met with Lockheed Martin SWG; acceptance needs to be by NASA SWG; requested meeting, but has received no response; send list of issues and what needs letter to Win Reid and John Stanford.

10/05/04 - Chris Tutt setting up meeting with SWG

08/01/04 - Plan due by 09/18/04

Open Item Number: 04-056	RID Open Date: 8/1/2004 RID Closure Date:
Title:	Affected Document:
Intiator(s):	Initiator(s) Phone Number:
Description:	
RID Disposition:	RID Status:
Ac	ction Item Information
Action Number: 1 Actionee(s): Chris Tutt Bill Hungerford Paul Nemeth	Phone Number(s):
Action Due Date: 2/28/2005	Action Completion Date:
Action: Provide the plan for Surveillance of Safety Critical as	ssembly and test steps of Collaboration Hardware.
Action Status:	

Open Item Number: 04-059 RID Open Date: 8/1/2004 RID Closure Date:

Title: Affected Document:

Initiator(s): Initiator(s) Phone Number:

Description:

RID Disposition: RID Status:

Action Item Information

Action Number: 1 Actionee(s): Dave Kaplan Phone Number(s):

Action Due Date: 9/30/2004 Action Completion Date:

Action: Determine if the JSC EEE Parts Board needs to review the AMS P/L electronics parts / processes / documentation.

Action Status: 12/10/05 - Rsponse required by 01/05/05.

09/29/04 - Trent Martin to discuss this action with Dave Kaplan

Open Item Number: 04-069 RID Open Date: 8/4/2004 RID Closure Date:

Title: Affected Document:

Initiator(s): Initiator(s) Phone Number:

Description:

RID Disposition: RID Status:

Action Item Information

Action Number: 1 Actionee(s): Leland Hill/LMSO Phone Number(s): 281-333-6539

Chris Tutt

Action Due Date: 5/1/2005 Action Completion Date:

Action: Coordinate closeout photo tasks; Need to verify we get closeout photos before hardware is closed up; Need update the pre-flight

imagery plan

Action Status: 10/05/04- final documentation must be done after Surveillance Plan for Safety Critical Structure

09/29/04 - Draft documentation is complete

Open Item Number: 04-115 RID Open Date: 11/29/2004 RID Closure Date:

Title: Affected Document:

Initiator(s): Initiator(s) Phone Number:

Description:

RID Disposition: RID Status:

Action Item Information

Action Number: 1 Actionee(s): Paul Nemeth Phone Number(s): 281-333-6116

Mike Fohey 281-333-6115

Action Due Date: 12/10/2004 Action Completion Date:

Action: Investigate to see if we need a FEMA/CIL for AMS. If not, what are we doing in place of the FEMA/CIL?

Action Status: 12/08/04 - presentation to be given at CCB on January 5, 2005

Open Item Number: 04-116 RID Open Date: RID Closure Date:

Title: Affected Document:

Initiator(s): Initiator(s) Phone Number:

Description:

RID Disposition: RID Status:

Action Item Information

Action Number: 1 Actionee(s): Craig Clark/LMSO Phone Number(s): 281-333-6779

Joe Burger

Action Due Date: 3/31/2005 Action Completion Date:

Action: Extending Magnet Life - Make sure nothing is dumping heat energy into the vacuum case (is the

CAB dumping rejected heat into the VC?) / helium cooling supply.

Action Status: 12/08/04 - to be discussed at Cern week of 12/13/04

Open Item Number: 04-117	RID Open Date: RID Closure Date:	
Title:	Affected Document:	
Intiator(s):	Initiator(s) Phone Number:	
Description:		
RID Disposition:	RID Status:	
	Action Item Information	
Action Number: 1 Actionee(s): Craig Clark/LMS Joe Burger	Phone Number(s): 281-333-6779	
Action Due Date: 3/31/2005	Action Completion Date:	
Action: Extending Magnet Life - Make sure we have the cryo-coolers (-vs- the 100W nominal power).	capbility to provide 150W of power into the	
Action Status:		

Open Item Number: 04-118 RID Open Date: RID Closure Date:

Title: Affected Document:

Initiator(s): Initiator(s) Phone Number:

Description:

RID Disposition: RID Status:

Action Item Information

Action Number: 1 Actionee(s): Craig Clark/LMSO Phone Number(s): 281-333-6779

Susan Brion

Action Due Date: 12/31/2004 Action Completion Date:

Action: Extending Magnet Life - Explore the possibility of providing more than the 150W of power to

cryo-coolers and the cost-to-benefit trade.

Action Status: 12/08/04 - needs Susan Brion; Craig Clark needs to send her an email

Open Hem Number: 04-119 KID Closure D	Open Item Number: 04-119	RID Open Date:	RID Closure Date:
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Title: Affected Document:

Initiator(s): Initiator(s) Phone Number:

Description:

RID Disposition: RID Status:

Action Item Information

Action Number: 1 Actionee(s): Craig Clark/LMSO Phone Number(s): 281-333-6779

Joe Burger

Action Due Date: 12/31/2004 Action Completion Date:

Action: Extending Magnet Life - Explore what else we can do to bias the VC cold.

Action Status: 12/08/04 - to be discussed at Cern week of 12/13/04; to be presented to CCB on 01/05/05.

Action Number: 2 Actionee(s): Steve Harrison/SCL Phone Number(s):

Action Due Date: 1/31/2005 Action Completion Date:

Action: Extending Magnet Life - 10 degree change to VC nominal

Action Status: 12/08/04 - to be discussed at Cern week of 12/13/04; to be presented to CCB on 01/05/05.

Open Item Number: 04-120	RID Open Date: 12/6/2004 RID Closure Date:
Title:	Affected Document:
Intiator(s):	Initiator(s) Phone Number:
Description:	
RID Disposition:	RID Status:
Actio	on Item Information
Action Number: 1 Actionee(s): Leland Hill/LMSO	Phone Number(s): 281-333-6539
Action Due Date: 1/31/2005	Action Completion Date:
Action: Work with all AMS experimenters to close out all open a	issues associated with the Phase II Flight Safety Review Safety Data Package.
Action Status:	

Open Item Number: AMS_02-CDR-01 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-1-10: Lack of Safety Information/ Documentation for the Thermal Affected Document: JSC 28792

Control System (TCS)

Intiator(s): H. Flynn/NASA-JSC

Initiator(s) Phone Number: 281-483-1198

Description: From the limited information provided in Table E2, it is not possible to determine the safety requirements compliance of the TCS.

Missing infomraiton includes: a system schematic, quality and type of working fluid, brief explanation(s) of the subsystem

Maximum Design Pressure (MDP) determinations, itemized list of each part number/component, etc

RID Disposition: Approved RID Status: Closure Pending Documentation

Action Item Information

Action Number: 1 Actionee(s): Chris Tutt/LMSO Phone Number(s): 281-333-6734

Action Due Date: 1/30/2005 Action Completion Date:

Action: Provide information in Phase II Safety Data Package and SVP will be updated.

Action Status:

Open Item Number: AMS_02-CDR-04 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-1-14: Lack of EVR Data in CDR Package

Affected Document:

Intiator(s): A. Mootty/Boeing PEI

Initiator(s) Phone Number: 281-226-4605

Description: The CDR package is lacking data (both design and analysis data) on the AMS-02 EVR accomidations for assessment of roboticss

compatability with SSP 57003 requirements.

RID Disposition: Approved RID Status:

Action Item Information

Action Number: 1 Actionee(s): R. Harold/LMSO Phone Number(s): 281-333-6134

Paul Nemeth/LMSO 281-333-6116

Action Due Date: 1/30/2005 Action Completion Date:

Action: AMS will provide all design and analysis data required to meet EVR requirements per SSP 57003.

Action Status:

Open Item Number: AMS_02-CDR-05 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-1-15: AMS-02 Passive Payload Attach System (PAS)

Affected Document: N/A

Intiator(s): M. Whitworth/Boeing PEI

Initiator(s) Phone Number: 281-226-4234

Description: SSP 57003 para. 3.1.1.2.3 (Design Loads) requires that the PAS/UCCAS interface shall be designed to withstand the interface

loads in Table 3.1.1.2.3-2 combined with the preload defined in paragraph 3.1.3.1.3.1 and the thermal loads derived from the environment defined in paragraph 3.5.1.12. Paragraph 3.5.1.12 states to use 0.2G and 0.4G on orbit load factors. This analysis used the interface loads and back-calculated the on-orbit load factors which were less than 0.05 G's. This calculation

method is not appropriate.

RID Disposition: Approved RID Status: Open due to pending action

Action Item Information

Action Number: 2 Actionee(s): C. Tutt/LMSO Phone Number(s): 281-333-7634

Action Due Date: 10/20/2004 Action Completion Date:

Action: Update SVP and complete analysis.

Action Status: 12/08/04 - currently in internal review cyle at Lockheed Martin; to be sent out within 2 weeks to be approved at CCB on

01/05/05.

10/05/04 - SVP updated, still needs signature

Open Item Number: AMS 02-CDR-06 **RID Open Date:** 5/1/2003 RID Closure Date:

Title: AMS-CDR-1-17: Meteoroid/Orbital Debris Shielding **Affected Document:** AMS-02 CDR Version 2

Intiator(s): E. Christiansen/NASA Initiator(s) Phone Number: 281-483-5311

Description: Shielding from meteoroid/debris impact is inadequate to meet protection requirements. Shielding of pressurized vessels on AMS-02 such as the vacuum case and TRD (as well as any other pressure vessel) is required to prevent catastrophic rupture of these tanks in the event of meteoroid/debris impact which would release high-velocity fragmentscreating a potentially serious safety issue for on-board crew. The assessd probability of no penetreation (PNP) using specified environment models is 0.97 which is far below the specified 0.997 PNP requirement. Updating ballistic limit equations and models as described in the forward work plan does not appear adequate to sho compliance with requirements. Additional or significantly enhanced shielding will likely be necessary to meet safety requirements.

RID Disposition: Approved **RID Status:** Open - Deferred to next cycle review

Action Item Information

Action Number: Actionee(s): D. Lear/LMSO **Phone Number(s):** 281-483-2998

Action Due Date: 7/1/2006 **Action Completion Date:**

Action: Complete analysis and coordinate design of debris shields. To be completed by Phase III Safety.

Action Status: Open - Deferred to next cycle review

Open Item Number: AMS_02-CDR-07 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-1-23: Design Reflects Out-Of-Date EBCS Configuration Affected Document: SEG39135720

Intiator(s): T. J. Urban/LMSO-ER3

Initiator(s) Phone Number: 281-333-6008

Description: Top level AMS assembly does not show EBCS connector guard and EBCS MLI blanket.

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): R. Harold/LMSO Phone Number(s): 281-333-6134

Action Due Date: 12/1/2005 Action Completion Date:

Action: Update AMS-02 assembly drawings.

Open Item Number: AMS_02-CDR-08 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-2-07: Bolt in Sloppy Holes Assured to Take Shear Affected Document: N/A

Intiator(s): B. Ritter/GSFC Initiator(s) Phone Number: 301-286-9022

Description: Bolts attaching the support ring to the conical flange were assumed to transfer shear, even though they are in sloppy holes this is

non-conservative.

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): Chris Tutt/LMSO Phone Number(s): 281-333-7634

Action Due Date: 1/30/2005 Action Completion Date:

Action: Work bolt concerns with the SWG.

Open Item Number: AMS_02-CDR-09 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-2-15: Missing Documents - Structural Analysis

Affected Document: N/A

Intiator(s): Murthy Pinnamaneni Structures/Boeing Initiator(s) Phone Number: 281-226-5665

Description: The following items were not available in the Data Package: design load factors, dynamic analysis procedure and results. From

2.2.1, AMS Report Outline.doc, Magnetic Strap Analysis and the Coupled Loads Analysis, which are identified to be in 'separate sections.' Reports/documents that include: Dynamic Loads Analysis Description; Payload/Shuttle Interface Loads; Trunnion

Deflection; Trunion Misalignment Loads: and Uncertainty Factors Used in the Analysis.

RID Disposition: Approved RID Status: Closure Pending Documentation

Action Item Information

Action Number: 1 Actionee(s): Chris Tutt/LMSO Phone Number(s): 281-333-7634

Action Due Date: 7/1/2006 Action Completion Date:

Action: Update stress report and dynamics analyses reports. To be completed by Phase III Safety Data Pack.

Open Item Number: AMS_02-CDR-10 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-3-01: Evaluation that Passive UMA Remains Within Its Temperature

Affected Document: AMS-02 TCS Presentation

Range

Intiator(s): V. Sanders/Boeing-PEI

Initiator(s) Phone Number: 281-226-4266

Description: SSP 57003 requirements 3.1.3.2.3.1 D is not listed as an applicable section. This section requires that the UMA passive half be

maintained within its allowable temperature range of -90 to +190 degress F.

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 2 Actionee(s): C. Clark/LMSO Phone Number(s): 281-333-6779

Action Due Date: 1/30/2005 Action Completion Date:

Action: Perform thermal assessment.

Open Item Number: AMS_02-CDR-11 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-3-05: Interface Based on Out-Of-Date EBCS Configuration

Affected Document: SSP 57213

Intiator(s): T. J. Urban/LMSO-ER3

Initiator(s) Phone Number: 281-333-6008

Description: Thermal design/analysis based on old EBCS configuration. Impacts:

1. EBCS keep alive heater 5-2 buses @ 50W ea., not 25W.

2. EBCS MLI blanket.

3. EBCS avionics box optical properties.

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): G. Le/NASA-OM Phone Number(s):

V. Sanders/Boeing/PEI

Action Due Date: 10/18/2004 Action Completion Date:

Action: Provide updates to SSP 57003. Update SSP 57003 and issue.

Action Status: 10/05/04 - Paul Nemeth to check to see if ICD has been updated

Action Number: 2 Actionee(s): C. Clark/LMSO

Phone Number(s): 281-333-6779

Action Due Date: 3/1/2005

Action: Perform analysis.

Action Status:

Open Item Number: AMS_02-CDR-12 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-4-18: Presentation Issues

Affected Document: Avionics & ACOP Presentati

Intiator(s): H. Hoang/PEI Initiator(s) Phone Number: 281-226-6054

J. Fu/PEO

Description: The presentation for avionics is not adequate for documentation purpose to show compliance with SSP 57003 requirements.

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): Paul Nemeth/LMSO Phone Number(s): 281-333-6116

Action Due Date: 1/30/2005 Action Completion Date:

Action: Supply document listing EMI/electrical specs.

Open Item Number: AMS_02-CDR-13 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-4-20: Power Compatability and EMC Testing

Affected Document: Avionics Overview

Intiator(s): H. Hoang/PEI

Initiator(s) Phone Number: 281-226-6054

J. Fu/PEO

Description: The EME Control Plan (or equivalent) used to establish the plan for how AMS will be compatable with the ISS EMI requirements

is lacking in the CDR package.

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): Paul Nemeth/LMSO Phone Number(s): 281-333-6116

Action Due Date: 10/30/2004 Action Completion Date:

Action: Supply EME control plan.

Open Item Number: AMS_02-CDR-14 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-4-24: No Cable List and Derating Analysis of Cables Affected Document: N/A

Initiator(s): D. Beverly/EEE Initiator(s) Phone Number: 281-483-0250

Description: There is no evidence of wiring or external cable list. The derating of the wire and cables has not been performed.

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): D. Nguyen/LMSO Phone Number(s): 281-333-6119

Action Due Date: 10/30/2004 Action Completion Date:

Action: Supply wire list and derating details.

Open Item Number: AMS_02-CDR-15 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-4-25: Connector Designator in AMS-02 Wiring Diagram

Affected Document: SIG39136082

Intiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: I/F Panel A P6/J6 should be P7/J7 to interface from the Standard Switch Panel (SSP), using the standard mixed cargo harness, to

AMS-02 control electronics per earlier agreement between the customer & USA/NASA ('Proposed STS cabling requirements for

AMS-02" agreed to October 30, 2001: Danny Irvin, Mariella Hartgerink, Michael Gerlach, and Ed Walters).

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): Paul Nemeth/LMSO Phone Number(s): 281-333-6116

Action Due Date: 10/30/2004 Action Completion Date:

Action: Implement recommendation.

Action Status: 10/05/04 - Paul nemeth to check on status of action

Open Item Number: AMS 02-CDR-16 **RID Open Date:** 5/1/2003 RID Closure Date:

Title: AMS-CDR-4-26: AMS-02 Wiring Schematic Affected Document: SIG39136082

Initiator(s) Phone Number: 281-226-5634 *Intiator(s):* Y. Jaurigue/AG-92-J34B

- **Description:** 1. On sheet 3, i/f panel a connector p6/j6 should be p7/j7 to interface to the ssp via smch cabling per earlier agreement (''proposed sts cabling requirement for ams-02' agreed in october 30, 2001: danny irvin, mariella hartgerink, michael gerlach, and ed walters). Also the emc classification for interface wiring through j6/p6 appears to be rf. Change the shielded pair wires to twisted pair wires for eo, ho, or ml class wiring - where appropriate. Redlines will be given @ ams-02 cdr avionics splinter.
 - 2. On sheet 3, the interface wiring through i/f panel a connector p5/j5 has two return line when there is only one available on p5 pin 35. Also, the 3 discrete output low signals from the mdm pf1 are available on pda connector p5 pins 32, 33 and 34.
 - 3. On sheet 3, the interface wiring through i/f panel a connector j4/p4 is missing a pair of shielded ground wires for rs-422 #1 and #2. Pin 9 of pda connector p4 is assigned for rs-422 #2 gnd and pin 10 of pda connector p4 is for rs-422 #1.
 - 4. On sheet 3, interface wiring from ams-02 rs-422 #1 and #2 through i/f panel a connector j4/p4 to pdip2 p103 / j103 is different from the 'proposed sts cabling requirement for ams-02' provided to paul nemeth via e-mail from d. Irvin on 12/07/2001 and boeing control schematic vs72-config 1 last revised on 11/24/2002. A unique cable will have to be built to support ams-02 rf requirements.
 - 5. This drawing should show the ams-02/gfe cable required to provide connectivity between ams-02 rs-422 service and t-0 connector j59.

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): Paul Nemeth/LMSO Phone Number(s): 281-333-6116

Action Due Date: 10/30/2004 Action Completion Date:

Action: Implement recommendation.

Open Item Number: AMS_02-CDR-17 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-4-28: SPHe Electronics to I/F Panel A, GPC Cable Assembly, W11

Affected Document: SEG39136103

Intiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: Sheet 2 of the above documents has two return lines when there is only one available on J5 mating Connector P5 Pin 35. Interface

from the MDM PF1 which provides 3 discrete output low signals to the AMS-02 control electronics are available on connector P5

Pins 32, 33, and 34.

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): D. Nguyen/LMSO Phone Number(s): 281-333-6119

Action Due Date: 1/31/2005 Action Completion Date:

Action: Implement recommendation.

Action Number: 2 Actionee(s): Bill Hungerford Phone Number(s):

Action Due Date: 1/31/2005 Action Completion Date:

Action: Interface definition for control electronics to Vacuum Vent Valve

Open Item Number: AMS_02-CDR-21 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-4-32: Missing Documents - Avionics

Affected Document: N/A

Intiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: From the Flight Avionics Drawing Index, the following items were not available for review in the data package: 39136117 ROEU

Connector Panel (Panel A), 39136118 ROEU Connector Panel Bracket (EW, YJ).

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): Paul Nemeth/LMSO Phone Number(s): 281-333-6116

Action Due Date: 11/15/2004 Action Completion Date:

Action: Implement recommendation.

Action Status: 11/18 - check status of action item on 11/29/04

Open Item Number: AMS_02-CDR-22 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-4-33: RS422 DDRS-02/PDIP Cable Assembly

Affected Document: SED39136111

Intiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: 1. The 'GND' Pin for PDIP2 on connector P105 will mate with connector J105 pin 7.

2. Please see RID (boeing tracking number) 'Boeing-14 RID AFD AMS-02 wiring Schematic' against SID39136110. The communication flow in the above document is unclear via the end to end interface nomenclatures. The RS-422 transmit and receive signal can be misinterpreted by the payload (AMS-02) and result in a last minute payload wiring.

Please note there is a concern regarding the second RS-422 interface from PDIP2 P105 to PDIP1 j4 which can potentally interfere with a shared use of the ku-band signal processor. It is preferred that only the required signal interface to PDIP1 J4 is used. If the high data rate digital data input of the ku-band signal processor is required per SIG39136083, use connector J4 (mating connector for P4) on PDIP1 Pin 15 and 16.

RID Disposition: RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): Paul Nemeth/LMSO Phone Number(s): 281-333-6116

Action Due Date: 10/30/2004 Action Completion Date:

Action: Supply EME control plan.

Action Status: 11/18 - check status of action item on 11/29/04

Open Item Number: AMS_02-CDR-23 RID Open Date: 5/1/2003 RID Closure Date:

Title: AMS-CDR-4-34: RS422 T-0/PDIP Cable Assembly

Affected Document: SED39136112

Intiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: 1. The "GND" Pin for PDIP2 on connector P105 will mate with connector J105 Pin 7. Also, the gnd wire routed to connector P4 is inconsistence with drawing SID39136110, which routes the same wire to P103.

2. Please see rid for SID39136110. The communication flow in the above document is unclear via the end to end interface nomenclatures. The RS-422 transmit and receive signal can be misinterpreted by the payload (AMS-02) and result in a last minute payload wiring.

Please note there is a concern regarding the second RS-422 interface from PDIP2 P105 to PDIP1 J4 which can potentally interfere with a shared use of the ku-band signal processor. It is preferred that only the required signal interface to PDIP1 J4 is used. If the high data rate digital data input of the ku-band signal processor is required per SIG39136083, use connector J4 (mating connector for P4) on PDIP1 Pin 15 and 16.

Also, it is recommended that pin to pin interface from PDIP2 P105 to P103 be as follows:

PDIP2 P105 - 3, 7, 6, 5, 12, 13, 10, 9, 2, 1

PDIP P103 - 3, 7, 13, 12, 5, 6, 10, 9, 2, 1

RID Disposition: Approved RID Status: Open

Action Item Information

Action Number: 1 Actionee(s): Paul Nemeth/LMSO Phone Number(s): 281-333-6116

Action Due Date: 10/30/2004 Action Completion Date:

Action: Implement recommendation.

Action Status: 11/18 - check status of action item on 11/29/04

Open Item Number: AMS_02-Doc_Review-67 RID Open Date: 6/24/2004 RID Closure Date:

Title: Updates to JSC 29202 Affected Document: JSC 29202

Intiator(s): T. Martin/LMSO

Initiator(s) Phone Number: 281-333-6114

Description: Vacuum Case ICD changes (JSC-29202B)

- 1. Change JSC Directorate.
- 2. Remove Ken Bollweg, J.R. Bates, J. Ross, and Professor K. Lubelsmeyer on signature pages. Add Trent Martin, Steve Porter, Robin Stafford Allen, and (?? for Aachen).
- 3. Update Figure 1.2-1, AMS-02 Payload and Experiment
- 4. Update Figures 2.1-1 and 2.1-2, AMS-02 Payload and Experiment Coordinate Axis and Origin (Note: There are no changes to the dimensions. These models are over 2 years old and out of date)
- 5. Update Figure 2.2.1-2, Vacuum Case Cross-Section. Dimensions have not changed but figure already exists that contains a better representation of the magnet and helium tank.
- 6. Update Figure 2.2.1-5, O-Ring Groove Detail. Remove o-ring or show compressed. Remove "Note: All dimensions are TBD pending the results of the small scale o-ring test."
- 7. Update strap port details in Figures 2.2.3-4 through 2.2.3-7 based on assembly issues during the Denver dynamic tests. (These changes were already made on the Vacuum Case drawings)
- 8. Update the feed thru port callouts on Figures 2.2.4-1 through 2.2.4-3. The locations have not changed.
- 9. Rename section 2.2.7 from Cryo Service Port to SFHe Tank Fill Port. Update text to remove references to Cryocoolers in this section.
- 10. Update section 2.2.8 and figures to reflect the new SFHe Tank Fill Port. This will include both flight and ground configurations. All other keep in/out zones have not changed.

- 11. Update section 2.2.9 and figures. Several generic holes were removed due to redesign after weight increase.
- 12. Update section 2.2.11.3 and figures. Several generic holes were removed due to redesign after weight increase.
- 13. Update section 3.1 to add more detail on the assembly of the cold mass/cmr to the vacuum case.
- 14. Update section 3.1.2, Strap System.
- 15. Update section 3.2, Assembly procedure between VC and ACC.
- 16. Update section 3.3, Assembly procedure between VC and Tracker.
- 17. Update section 4.0, Vacuum Case vacuum and test requirements.
- 18. Update document per the attached changes (Vacuum Case ICD Changes.doc)

RID Disposition: Approved RID Status: Open due to pending action

Action Item Information

Action Number: 1 Actionee(s): P. Mott/LMSO Phone Number(s): 281-333-6451

Action Due Date: 9/30/2004 Action Completion Date:

Action: Update as indicated

Open Item Number: AMS_02-Doc_Review-68 RID Open Date: 6/24/2004 RID Closure Date:

Title: Update to 8.2.1 Operations Procedures Description

Affected Document: JSC 29095 Part I

Intiator(s): L. Arnold/NASA-DO5

Initiator(s) Phone Number: 281-483-0623

Description: Inadequately describes the procedures that will be developed for flight operations.

P. Nemeth/LMSO

RID Disposition: Approved RID Status: Open due to pending action

Action Item Information

Action Number: 1 Actionee(s): R. Harold/LMSO Phone Number(s): 281-333-6134

281-333-6116

Action Due Date: 10/29/2004 Action Completion Date:

Action: Update as recommended.

Action Status: 11/17 - Paul Nemeth to contact the initiator

Open Item Number: AMS_02-Doc_Review-78 RID Open Date: 6/24/2004 RID Closure Date:

Title: ICD/Roles and Responsibilities

Affected Document: JSC 29095

Intiator(s): R. Schwarz/NASA-EA2

Initiator(s) Phone Number: 281-483-2378

Description: Organizational roles and responsibilities defined in the ICD JSC 29095 parts I and II do not match draft update of the AMS

Project Management Plan JSC 27296. ICD Section 3 - JSC PIB is referenced - needs updated (check other references of PIB)

RID Disposition: Approved RID Status: Open due of pending action

Action Item Information

Action Number: 1 Actionee(s): R. Harold/LMSO Phone Number(s): 281-333-6134

Action Due Date: 8/30/2004 Action Completion Date:

Action: Update ICD

Action Status: 12/08/04 - to be sent out for review in two weeks; to be presented at CCB 01/05/05

11/17 - Review Part I of ICD